MES COLLEGE OF ENGINEERING, KUTTIPPURAM DEPARTMENT OF COMPUTER APPLICATIONS 20MCA245 – MINI PROJECT

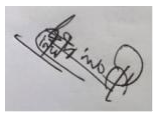
PRO FORMA FOR THE APPROVAL OF THE THIRD SEMESTER MINI PROJECT

(Note: All entries of the pro forma for approval should be filled up with appropriate and complete information. Incomplete Pro forma of approval in any respect will be rejected.)

Mini Project Proposal No : _____
(Filled by the Department)

Academic Year : 2020-2022
Year of Admission : 2020

1. Title of the Project : Prediction Of The Heart Disease Using Machine Learning
2. Name of the Guide : _____
3. Number of the Student: MES20MCA-2031
4. Student Details (in BLOCK LETTERS)

Name	Roll Number	Signature
1. MUBEENA.C	31	

Date:03/12/2021

Approval Status : Approved / Not Approved

Signature of
Committee Members

Comments of The Mini Project Guide Dated Signature

Initial Submission :

First Review :

Second Review :

Comments of The Project Coordinator Dated Signature

Initial Submission:

First Review

Second Review

Final Comments : Dated Signature of HOD

PREDICTION OF HEART DISEASE USING MACHINE LEARNING

Mubeena.c

INTRODUCTION

There is no dearth of records regarding medical symptoms of patients suffering heart strokes. However the potential they have- to help us foretell similar possibilities in seemingly healthy adults are going unnoticed. For instance: As per the Indian Heart Association, 50% of heart strokes occur under 50 years of age and 25% of all heart strokes occur under 40 years of age in Indians. Urban population is thrice as vulnerable to heart attacks as rural population.We thus propose to collect relevant data pertaining all elements related to our field of study, train the data as per the proposed algorithm of machine learning and predict how strong is there a possibility for a patient to contract a heart disease. For the purpose of patients entering data, we suggest to make use of the easily available sensors in watches and cell phones to measure the simple factors.

OBJECTIVES

With the rampant increase in the heart stroke rates at juvenile ages, we need to put a system in place to be able to detect the symptoms of a heart stroke at an early stage and thus prevent it. It is impractical for a common man to frequently undergo costly tests like the ECG and thus there needs to be a system in place which is handy and at the same time reliable, in predicting the chances of a heart disease. Thus we propose to develop an application which can predict the vulnerability of a heart disease given basic symptoms like age, sex, pulse rate etc. The machine learning algorithm neural networks has proven to be the most accurate and reliable algorithm and hence used in the proposed system

TOOLS / PLATFORM, HARDWARE AND SOFTWARE REQUIREMENT

Hardware Requirements

- Input Device : Mouse,Keyboard
- Output Device : Monitor
- Memory : 4 Gb Ram(Minimum)
- Processor : Intel core i3 or above

Software Requirements

- Operating System : Windows 8 /10for Better Performance
- Front End : Python (Flask)
- Back End : Mysql
- Software Used : Pycharm
- Web Browser :Internet Explorer/Google Chrome/Firefox(for web application)

PROBLEM DEFINITION AND INITIAL REQUIREMENTS

In each and every aspect towards the goal of the system. In the first place, the research was in the direction of the main causes or the factors which have strong influence on the heart health. Some factors are unmodifiable like age, sex and family background but there are some parameters like blood pressure, heart rate etc. which can be kept in control by following certain measures. Many doctors suggest healthy diet and regular exercise to keep the heart healthy. Following are the parameters which are considered for the study in designing the system which have major risk percentage with respect to CAD

1. Age
2. Sex
3. Blood Pressure
4. Heart Rate
5. Diabetes
6. Hyper cholesterol
7. Body Mass Index (obesity)

The next step was to collect dataset. For this we have used Cleveland dataset from UCI library. The dataset contains as many as 76 parameters describing the complete health status of heart. These parameters are obtained by expensive clinical tests like ECG, CT scan etc. Out of these, the traditional heart disease prediction system uses 13 major parameters [6][7]. Since these parameters require expensive lab tests to find ECG, chest pain type, ST depression etc. To avoid these and to make system less complex we selected above mentioned parameters which can be easily measured using different sensors available in the market. The following research work briefly explains the latest sensors in the market used to measure different parameters.

BASIC FUNCTIONALITIES OF THE PROJECT

The project contain following modules:

Mini Project Modules

1. Loading UCI Dataset
2. Preprocessing dataset
3. Training
    a) Using Random forest
    b) Using Decision tree classifier
    c) Using MLP
4. Prediction
    a) Using Random forest
    b) Using Decision tree classifier
    c) Using MLP
5. Performance evaluation using scikit-learn